

#### ABSTRACT

It is an object to obtain a calorimeter characterized by excellent mechanical strength, and a manufacturing method thereof, when a plurality of calorimeters are arranged inside a single substrate. The calorimeter has an absorbent for converting energy of radioactive rays into heat and a resistor for converting heat into an electrical signal using superconductive transition are arranged on a membrane for determining thermal conductivity with the membrane being attached to a substrate, the substrate having a tri-layer structure comprising an etching layer, an etching stop layer and a support substrate, the membrane being arranged separated by the thickness of the etching stop layer and the etching layer.